

Applicants : Michael Wayne Graham et al.
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Filed : April 8, 2004
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Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-157. (Canceled)

158. (New) A double-stranded DNA construct comprising:

- a first structural gene sequence whose nucleotide sequence is identical to the nucleotide sequence of a region of a target gene in an animal cell;

- a second structural gene sequence identical in sequence to, and in an inverted orientation relative to, the first structural gene sequence;

- a stuffer fragment which consists of nucleotides and which separates and links the first and second structural gene sequences;

- a promoter operable in the animal cell; and

- a transcription termination sequence active in the animal cell,

wherein the first structural gene sequence, the stuffer fragment and the second structural gene sequence are all operably connected to the promoter and the transcription termination sequence.

159. (New) The double-stranded DNA construct of claim 158, wherein the target gene is endogenous to the animal cell.

160. (New) The double-stranded DNA construct of claim 158, wherein the region of the target gene is in an exon.

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161. (New) The double-stranded DNA construct of claim 158, wherein the target gene is a foreign gene to the animal cell.
162. (New) The double-stranded DNA construct of claim 161, wherein the target gene is a viral gene.
163. (New) The double-stranded DNA construct of claim 162, wherein the viral gene encodes a DNA polymerase, a RNA polymerase, or a viral coat protein.
164. (New) The double-stranded DNA construct of claim 162, wherein the viral gene is from a lentivirus.
165. (New) The double-stranded DNA construct of claim 162, wherein the viral gene is from an immunodeficiency virus.
166. (New) The double-stranded DNA construct of claim 162, wherein the viral gene is from a single stranded (+) RNA virus.
167. (New) The double-stranded DNA construct of claim 162, wherein the viral gene is from a double-stranded DNA virus.
168. (New) The double-stranded DNA construct of claim 158, wherein the target gene is a transgene in the animal cell.
169. (New) The double-stranded DNA construct of claim 158, wherein the stuffer fragment is a sequence of nucleotides 10-50 nucleotides in length.

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170. (New) The double-stranded DNA construct of claim 158, wherein the stuffer fragment is a sequence of nucleotides 50-100 nucleotides in length.
171. (New) The double-stranded DNA construct of claim 158, wherein the stuffer fragment is a sequence of nucleotides 100-500 nucleotides in length.
172. (New) The double-stranded DNA construct of claim 158, further comprising a third structural gene sequence whose nucleotide sequence is identical to the nucleotide sequence of a different region of the same target gene or a different target gene in the animal cell, and a fourth structural gene sequence identical in sequence to, and in an inverted orientation relative thereto.
173. (New) An animal cell having a double-stranded DNA comprising:
- a first structural gene sequence whose nucleotide sequence is identical to the nucleotide sequence of a region of a target gene in an animal cell;
 - a second structural gene sequence identical in sequence to, and in an inverted orientation relative to, the first structural gene sequence;
 - a stuffer fragment which consists of nucleotides and which separates and links the first and second structural gene sequences;
 - a promoter operable in the animal cell; and
 - a transcription termination sequence active in the animal cell,
- wherein the first structural gene sequence, the stuffer fragment and the second structural gene sequence are all

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operably connected to the promoter and the transcription termination sequence.

174. (New) The animal cell of claim 173, wherein the target gene is endogenous to the animal cell.
175. (New) The animal cell of claim 173, wherein the region of the target gene is in an exon.
176. (New) The animal cell of claim 173, wherein the target gene is a foreign gene to the animal cell.
177. (New) The animal cell of claim 176, wherein the target gene is a viral gene.
178. (New) The animal cell of claim 177, wherein the viral gene encodes a DNA polymerase, a RNA polymerase, or a viral coat protein.
179. (New) The animal cell of claim 177, wherein the viral gene is from a lentivirus.
180. (New) The animal cell of claim 177, wherein the viral gene is from an immunodeficiency virus.
181. (New) The animal cell of claim 177, wherein the viral gene is from a single stranded (+) RNA virus.
182. (New) The animal cell of claim 177, wherein the viral gene is from a double-stranded DNA virus.

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183. (New) The animal cell of claim 173, wherein the target gene is a transgene in the animal cell.
184. (New) The animal cell of claim 173, wherein the stuffer fragment is a sequence of nucleotides 10-50 nucleotides in length.
185. (New) The animal cell of claim 173, wherein the stuffer fragment is a sequence of nucleotides 50-100 nucleotides in length.
186. (New) The animal cell of claim 173, wherein the stuffer fragment is a sequence of nucleotides 100-500 nucleotides in length.
187. (New) The animal cell of claim 173, wherein the double-stranded DNA further comprises a third structural gene sequence whose nucleotide sequence is identical to the nucleotide sequence of a different region of the same target gene or a different target gene in the animal cell, and a fourth structural gene sequence identical in sequence to, and in an inverted orientation relative thereto.
188. (New) A process for delaying, repressing or otherwise reducing the expression of a target gene in an animal cell comprising introducing into a cell a double-stranded DNA comprising a promoter operable in the cell, a transcription termination sequence active in the cell, and operably connected thereto
 - a first structural gene sequence whose nucleotide sequence is identical to the nucleotide sequence of a region of a target gene in the animal cell;

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a second structural gene sequence identical in sequence to, and in an inverted orientation relative to, the first structural gene sequence; and

a stuffer fragment which consists of nucleotides and which separates and links the first and second structural gene sequences,
such that the double-stranded DNA is transcribed to produce a RNA molecule in the cell.

189. (New) The process of claim 188, wherein the target gene is endogenous to the animal cell.
190. (New) The process of claim 188, wherein the region of the target gene is in an exon.
191. (New) The process of claim 188, wherein the target gene is a foreign gene to the animal cell.
192. (New) The process of claim 191, wherein the target gene is a viral gene.
193. (New) The process of claim 192, wherein the viral gene encodes a DNA polymerase, a RNA polymerase, or a viral coat protein.
194. (New) The process of claim 192, wherein the viral gene is from a lentivirus.
195. (New) The process of claim 192, wherein the viral gene is from an immunodeficiency virus.

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196. (New) The process of claim 192, wherein the viral gene is from a single stranded (+) RNA virus.
197. (New) The process of claim 192, wherein the viral gene is from a double-stranded DNA virus.
198. (New) The process of claim 188, wherein the target gene is a transgene in the animal cell.
199. (New) The process of claim 188, wherein the stuffer fragment is a sequence of nucleotides 10-50 nucleotides in length.
200. (New) The process of claim 188, wherein the stuffer fragment is a sequence of nucleotides 50-100 nucleotides in length.
201. (New) The process of claim 188, wherein the stuffer fragment is a sequence of nucleotides 100-500 nucleotides in length.
202. (New) The process of claim 188, wherein the double-stranded DNA further comprises a third structural gene sequence whose nucleotide sequence is identical to the nucleotide sequence of a different region of the same target gene or a different target gene in the animal cell, and a fourth structural gene sequence identical in sequence to, and in an inverted orientation relative thereto.